

**IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF PENNSYLVANIA**

MICHAEL ROBINSON and WENDY ROBINSON,	:	
	:	
Plaintiffs,	:	
	:	
v.	:	
	:	
HARTZELL PROPELLER INC., and NEW ENGLAND PROPELLER SERVICE, INC.	:	CIVIL ACTION NO. 01-5240
	:	
Defendants.	:	

DuBOIS, J.

AUGUST 30, 2007

MEMORANDUM

I. INTRODUCTION

On August 15, 1999, plaintiffs Michael and Wendy Robinson were forced to make an emergency crash landing in their Mooney M20E aircraft near Prattsburg, New York. Plaintiffs allege that, as a result of the crash, Wendy Robinson fractured her spine, breast bone, and left foot; Michael Robinson's injuries resulted in permanent paraplegia.

Plaintiffs aver in the Complaint that a blade of the aluminum propeller on their aircraft fractured during the flight, causing the crash. Defendant Hartzell Propeller Inc. ("Hartzell") designed and manufactured the propeller. Defendant New England Propeller Service, Inc. ("New England") allegedly performed an overhaul and maintenance of the propeller in 1989 in accordance with Hartzell's Overhaul Manual and Airworthiness Directive ("AD") 77-12-06.¹

The Complaint asserts claims against Hartzell for negligence (Count I), strict liability

¹ "FAA's airworthiness directives are legally enforceable rules that apply to the following products: aircraft, aircraft engines, propellers, and appliances." 14 C.F.R. § 39.3.

(Count II), and fraud and misrepresentation (Count III). Plaintiffs assert one claim against New England for negligence (Count IV).

Presently before the Court is defendant New England's Motion in Limine to preclude the testimony of six expert witnesses for plaintiffs under Daubert v. Merrell Dow Pharms., 509 U.S. 579 (1993), and its progeny. For the reasons set forth below, New England's Daubert Motion is denied.

II. FACTS AND PROCEDURAL HISTORY

A detailed factual and procedural history is included in this Court's previous opinions in this case and the previously published opinion of the Court of Appeals for the Third Circuit. See Robinson v. Hartzell Propeller, Inc., 326 F. Supp. 2d 631 (E.D. Pa. 2004), aff'd Robinson v. Hartzell Propeller, Inc., 454 F.3d 163 (3d Cir. 2006); Robinson v. Hartzell Propeller Inc., 2007 WL 2007969 (E.D. Pa. Jul. 5, 2007). Accordingly, in this Memorandum, the Court sets forth only the factual and procedural history necessary to explain its ruling.

A. This Court's July 21, 2004 Memorandum and Order

On April 21, 2003, New England filed a Motion to Exclude the testimony of plaintiffs' expert Richard H. McSwain on the ground that Dr. McSwain was not qualified to offer the opinion that the propeller on plaintiffs' aircraft was overhauled improperly. In that Motion, New England did not object to "the technique [Dr. McSwain] used to reach his conclusions or the reliability or fit of the evidence." Robinson, 326 F. Supp. 2d at 667.

By Memorandum and Order dated July 21, 2004, the Court held that Dr. McSwain was qualified to testify regarding maintenance on the propeller. The Court explained this holding as follows:

Dr. McSwain's background in metallurgy and materials failure analysis qualify him to analyze the paint of the blade and determine that this paint covered corrosion pits. Dr. McSwain's curriculum vitae discloses that he has spent more than twenty-five years conducting failure analysis of aircraft. . . . He has 'analyzed hundreds of failures in aluminum components due to corrosion pitting.' . . . In his consulting practice, he has 'analyzed rotor blade and propeller blade failures, including fatigue failures from corrosion pits.' . . . In September 1998, Dr. McSwain completed a course in Fourier Transform Infrared Theory, Sample Handling and Spectral Interpretation, the method used to analyze the paint on the blade. . . . This experience and training are sufficient to permit Dr. McSwain to opine on this issue.

Id. at 667-68 (citations omitted).

In the July 21, 2004 Memorandum and Order, the Court also ruled on New England's Motion for Summary Judgment. In doing so, the Court analyzed the evidence that New England conducted an overhaul of plaintiffs' propeller in 1989. This evidence consisted of maintenance records and a flight log from the aircraft² and an affidavit of Dr. McSwain.³ The Court concluded that this evidence was "sufficient to raise a genuine issue of material fact with respect to whether NEPS performed both a propeller overhaul and maintenance required by AD 77-12-

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The maintenance records, labeled 'Airworthiness Directive Compliance Record' and 'Airworthiness Directives,' contain an entry stating that AD-77-12-06 was performed on plaintiffs' airplane by 'N.E. Propeller' in July of 1989. . . . The flight log also contains the following entry signed by J. Hardy: 'removed Hartzell propeller for 77-12-06 AD – Accomplished by N.E. Propeller. See yellow tag back of this book – Reinstalled on A/C.'

Robinson, 326 F. Supp. 2d at 664 (citations omitted).

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Dr. McSwain stated in his affidavit that chemical analysis of the propeller revealed that both an overhaul and maintenance required by AD 77-12-06 were performed. That conclusion was based on Dr. McSwain's finding that polyurethane paint was uniform in composition and appearance over the entire blade surface. . . . According to Dr. McSwain, AD 77-12-06 only requires repainting the blade in the shank radius area, not the entire blade, leading him to conclude that both AD 77-12-06 maintenance and an overhaul were performed.

Robinson, 326 F. Supp. 2d at 665 (citations omitted).

06.” Id. at 666. In addition, the Court concluded that there was evidence—affidavits and reports from experts Jerry Foster and Dr. McSwain—that New England performed maintenance on the propeller negligently. Id. at 666.⁴ Thus, the Court denied New England’s Motion for Summary Judgment. Id. at 669.

B. The Instant Daubert Motion Filed by New England

On March 1, 2007, New England filed a Daubert Motion to exclude the testimony of six expert witnesses for plaintiffs: Dr. McSwain, Donald Sommer, Mark Hood, Manuel Raefsky, Jerry Foster, and A.J. Fiedler. In the Daubert Motion, New England argues that the testimony of plaintiffs’ experts should be excluded under the “reliability” and “fit” prongs of Daubert. New England does not challenge the experts’ qualifications.

On July 10, 2007, the parties filed a Joint Report as to the need for a hearing on New England’s Motion. In the Joint Report, plaintiffs argued that a hearing is unnecessary; New England argued that a Daubert hearing is necessary only as to Dr. McSwain. Joint Report at 1, 7. The Court concludes that there is a sufficient factual record to rule on the Daubert Motion without a hearing. See Oddi v. Ford Motor Co., 234 F.3d 136, 155 (3d Cir. 2000). The Court notes that the parties have submitted extensive briefing in this case, including the Joint Report, which significantly increased the factual record.

Further, the parties agree that the conclusions of plaintiffs’ experts Sommer, Hood,

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According to Dr. McSwain, ‘[t]he failure of [NEPS] to completely remove the corrosion pits from the subject Hartzell ‘Y’ shank blade and to apply polyurethane paint over the corrosion pits made subsequent detection of the corrosion pitted condition unlikely.’ . . . Mr. Foster substantiates Dr. McSwain’s opinion that the surface pits and intergranular corrosion were not discovered during the last overhaul. Robinson, 326 F. Supp. 2d at 666 (citations omitted).

Raefsky, Foster, and Fielder “are premised on the findings by Dr. McSwain.” Joint Report at 1. For this reason, the parties state that “the Court’s ruling on the McSwain–Daubert challenge will be determinative as to those experts.” Id. The Court interprets this to mean that it is only the findings and opinion of Dr. McSwain, relied upon by Sommer, Hood, Raefsky, Foster, and Fielder, which are attacked in New England’s Daubert Motion, as amended by the Joint Report.⁵ Accordingly, the Court analyzes New England’s Daubert Motion as applied to Dr. McSwain only. The Court’s ruling as to Dr. McSwain is “determinative” as to plaintiffs’ additional experts. See id.

C. Dr. McSwain’s Proposed Testimony

A propeller blade consists of four sections: hub, shank, mid-blade and tip. Mot. at 2, Ex. B. The blade shank is located at the hub end of the propeller. Id. at 2. The blade shank includes the blade retention radius, which is a small area close to the butt of the blade. Id. Together, the mid-blade and tip comprise the airfoil section. Id. In this case, “[a]ccording to an investigation conducted by the [NTSB], the fracture occurred in the “mid-blade” region of the propeller,” part of the airfoil section. Robinson, 326 F. Supp. 2d at 636; see also Mot., Ex. C at 1.

Dr. McSwain examined the propeller blade on plaintiffs’ aircraft using visual examination, macroscopic evaluation, scanning electron microscopy, propeller blade surface condition analysis, blade paint Fourier Transform Infrared (FT-IR) analysis, x-ray energy spectroscopy, microstructural analysis, and strain gauging. Resp., Ex. A ¶¶ 3.2-3.9. In addition, Dr. McSwain examined relevant documents, including National Transportation Safety Board

⁵ As the Supreme Court held in Daubert, “[u]nlike an ordinary witness, see Rule 701, an expert is permitted wide latitude to offer opinions, including those that are not based on firsthand knowledge or observation. See Rules 702 and 703.” Daubert, 509 U.S. at 592.

(“NTSB”) reports of the accident, FAA Airworthiness Directives, the Hartzell “Y” Shank Blade Overhaul Manual, and aircraft maintenance records. Id. ¶ 6.0.

In the instant Daubert Motion, New England challenges Dr. McSwain’s proposed testimony in three areas: (1) his observations regarding polyurethane paint on the propeller blade; (2) his observations regarding chromium on the surface of the blade; and (3) his observations regarding corrosion pits and abrasions on the blade. The Court summarizes Dr. McSwain’s findings in each area in turn.

1. Dr. McSwain’s Proposed Testimony Regarding Polyurethane Paint Observed on the Propeller Blade

Dr. McSwain evaluated the propeller blade using microscope-based Fourier Transform Infrared (FT-IR). Specifically, he examined 31 samples of paint taken from the propeller blade at three locations: the blade radius, approximately 3.5 inches from the blade radius, and the fracture area. Joint Report at 9 n.6; Mot., Ex. O ¶ 3.6. The paint composition at all three site was “consistent with the Hartzell overhaul manual required polyurethane paint.” Mot., Ex. O ¶¶ 3.6, 5.0(13). Dr. McSwain further concluded that the polyurethane paint “was uniform in composition and appearance over the blade surface, consistent with the Hartzell overhaul manual requirements.” Id. ¶ 5.0(14); see also Robinson, 326 F. Supp. 2d at 665 (setting forth Dr. McSwain’s observations).

Dr. McSwain’s findings are significant because the fact that the polyurethane paint found on the blade covered both the blade shank and the airfoil section is consistent with plaintiff’s theory that New England overhauled the blade in 1989. Mot., Ex. O ¶ 5.0(17). New England contends that, even if it performed maintenance on the propeller, it did not overhaul the propeller

and performed no work on the airfoil section. Mot. at 2-3.

2. Dr. McSwain's Proposed Testimony Regarding Chromium Observed on the Propeller Blade

Dr. McSwain examined the propeller blade in a scanning electron microscope using x-ray energy spectroscopy. Resp., Ex. E at 2. This analysis revealed that there is chromium on the surface of the blade. Id. Dr. McSwain further observed that “[t]he aluminum propeller blade and the gray paint on the fracture origin of the blade [did] not contain chromium.” Id. On the basis of these observations, Dr. McSwain concluded that “[t]he presence of chromium on the surface of the blade is consistent with, and indicative of, an alodine treatment applied to the blade surface.” Id. This finding is significant because New England uses an alodine treatment during propeller overhauls. Mot. at 10. This treatment is used to protect aluminum propellers from corrosion. Resp. at 4, Ex. C.

3. Dr. McSwain's Proposed Testimony Regarding Corrosion Pits and Abrasions Observed on the Propeller Blade

Dr. McSwain further examined the propeller blade using scanning electron microscopy and surface condition analysis. Mot., Ex. O ¶ 3.5. Through this analysis, he observed that “[t]he blade camber surface . . . exhibited fine corrosion pits as well as larger isolated pits such as the one at the [fracture] origin.” Id. Using FT-IR, Dr. McSwain found that the corrosion pits were covered with polyurethane paint. Id. ¶¶ 3.6, 5.0(1).

Scanning electron microscopy of one corrosion pit “revealed sharp edges . . . typical of corrosion attack of wrought aluminum that has had surface refinishing performed.” Id. ¶ 3.5. Scanning electron microscopy of another pit “revealed a shallow condition typical of refinishing of the surface of the blade in the area of the bit.” Id. Dr. McSwain also observed “numerous

refinishing scratches” on the surface of the propeller blade. Id. ¶ 3.5.

These findings are significant because Dr. McSwain concluded that “[t]he failure of New England Propeller to completely remove the corrosion pits from the subject Hartzell ‘Y’ shank blade and to apply polyurethane paint over the corrosion pits made subsequent detection of the corrosion pitted condition unlikely.” Id. ¶ 5.0(18).

III. LEGAL STANDARD

Federal Rule of Evidence 702 governs the admissibility of expert testimony. The rule provides as follows:

If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise, if (1) the testimony is based upon sufficient facts or data, (2) the testimony is the product of reliable principles and methods, and (3) the witness has applied the principles and methods reliably to the facts of the case.

Fed. R. Evid. 702.⁶

The “pathmarking” Supreme Court cases interpreting Rule 702 are Daubert and Kumho Tire Co., Ltd. v. Carmichael, 526 U.S. 137, 141 (1999). United States v. Mitchell, 365 F.3d 215 (3d Cir. 2004) (Becker, J.). In Daubert, the Supreme Court held that “[f]aced with a proffer of expert scientific testimony . . . the trial judge must determine at the outset . . . whether the expert is proposing to testify to (1) scientific knowledge that (2) will assist the trier of fact to understand or determine a fact in issue.” Daubert, 509 U.S. at 592. In Kumho Tire, the Supreme Court made clear that the Daubert gatekeeping function extends beyond scientific testimony to testimony based on “technical” and “other specialized” knowledge. 526 U.S. at 141.

⁶ In 2000, Rule 702 was amended to incorporate the holding in Daubert. See United States v. Brownlee, 454 F.3d 131, 142 n.10 (3d Cir. 2006).

Under Daubert, courts must address a “trilogy of restrictions” before permitting the admission of expert testimony: qualification, reliability and fit. Schneider v. Fried, 320 F.3d 396, 404 (3d Cir. 2003); see also Elcock v. Kmart Corp., 233 F. 3d 734, 741 (3d Cir. 2000).⁷ The party offering the expert must prove each of these requirements by a preponderance of the evidence. In re TMI Litig., 193 F.3d 613, 663 (3d Cir. 1999).

A. Reliability

The reliability requirement of Daubert “means that the expert’s opinion must be based on the ‘methods and procedures of science’ rather than on ‘subjective belief or unsupported speculation’; the expert must have ‘good grounds’ for his or her belief.” In re Paoli R.R. Yard PCB Litig., 35 F.3d 717, 742 (3d Cir. 1994) (hereinafter “Paoli II”) (quoting Daubert, 509 U.S. at 590). In Kumho Tire, the Supreme Court held that the Daubert test of reliability is “flexible” and “the law grants a district court the same broad latitude when it decides how to determine reliability as it enjoys in respect to its ultimate reliability determination.” 526 U.S. at 141-42. Citing Daubert and United States v. Downing, 753 F.2d 1224 (3d Cir. 1985), the Third Circuit has set forth factors relevant to determining the reliability of expert testimony:

(1) whether a method consists of a testable hypothesis; (2) whether the method has been subject to peer review; (3) the known or potential rate of error; (4) the existence and maintenance of standards controlling the technique’s operation; (5) whether the method is generally accepted; (6) the relationship of the technique to methods which have been established to be reliable; (7) the qualifications of the expert witness testifying based on the methodology; and (8) the non-judicial uses to which the method has been put.

Mitchell, 365 F.3d at 235 (citing Paoli II, 35 F.3d at 742 n.8). A trial court may consider one or

⁷ As stated above, the qualification of plaintiffs’ expert witnesses is not at issue in this Memorandum. However, “a given expert’s qualifications [may] enhance the reliability of his testimony” under the second Daubert prong. Mitchell, 365 F.3d at 242.

more of these factors “when doing so will help determine that testimony’s reliability.” Kumho Tire, 526 U.S. at 141-42.

Under the Daubert reliability prong, plaintiffs “do not have to demonstrate to the judge by a preponderance of the evidence that the assessments of their experts are *correct*, they only have to demonstrate by a preponderance of evidence that their opinions are reliable.” Paoli II, 35 F.3d at 744 (emphasis in original). “The evidentiary requirement of reliability is lower than the merits standard of correctness.” Id. “As long as an expert’s scientific testimony rests upon ‘good grounds, based on what is known,’ it should be tested by the adversary process—competing expert testimony and active cross-examination—rather than excluded from jurors’ scrutiny for fear that they will not grasp its complexities or satisfactorily weigh its inadequacies.” Mitchell, 365 F.3d at 244 (quoting Ruiz-Troche v. Pepsi Cola Bottling Co., 161 F.3d 77, 85 (1st Cir. 1998)). “[A] party confronted with an adverse expert witness who has sufficient, though perhaps not overwhelming, facts and assumptions as the basis for his opinion can highlight those weaknesses through effective cross-examination.” Id. at 245 (quoting Stecyk v. Bell Helicopter Textron, Inc., 295 F.3d 408, 414 (3d Cir. 2002)).

B. Fit

For expert testimony to meet the Daubert “fit” requirement, it must “assist the trier of fact to understand the evidence or to determine a fact in issue.” Fed. R. Evid. 702. “This condition goes primarily to relevance. Expert testimony which does not relate to any issue in the case is not relevant and, ergo, non-helpful.” Daubert, 509 U.S. at 591 (citing Downing, 753 F.2d at 1242 (quotations omitted)). “‘Fit’ is not always obvious, and scientific validity for one purpose is not necessarily scientific validity for other, unrelated purposes.” Daubert, 509 U.S. at 591.

IV. DISCUSSION

A. The Reliability of Dr. McSwain's Proposed Testimony

In the instant Daubert Motion, New England challenges the reliability of Dr. McSwain's testimony in three areas: (1) his observations regarding polyurethane paint on the propeller blade; (2) his observations regarding chromium on the surface of the blade; and (3) his observations regarding corrosion pits and abrasions on the blade. The Court addresses each issue in turn.⁸

1. Dr. McSwain's Proposed Testimony Regarding Polyurethane Paint Is Reliable

Dr. McSwain evaluated the propeller using microscope-based FT-IR. He observed that the paint composition on both the blade shank and the fracture area was "consistent with . . . polyurethane paint." Mot., Ex. O ¶¶ 3.6, 5.0(13). Dr. McSwain further concluded that the polyurethane paint on the entire propeller blade "was uniform in composition and appearance over the blade surface, consistent with the Hartzell overhaul manual requirements." Id. ¶ 5.0(14).

In its Daubert Motion, New England does not object to Dr. McSwain's finding that there was polyurethane paint on the blade shank and airfoil sections of the propeller blade. Rather, New England objects to Dr. McSwain's testimony that the polyurethane paint was consistent over the entire propeller blade. Specifically, New England argues that Dr. McSwain did not distinguish between *batches* of polyurethane paint to determine whether the polyurethane paint on the blade shank is identical to the polyurethane paint on the airfoil. In support of this

⁸ The Court notes that New England knew of Dr. McSwain's testimony regarding the polyurethane paint and the corrosion pits found on the propeller blade before filing the first Motion to Exclude Dr. McSwain's testimony. Robinson, 326 F. Supp. 2d at 655, 666. However, New England did not challenge the reliability or fit of Dr. McSwain's testimony in that Motion.

argument, New England asserts that gas chromatography mass spectrometry (GCMS) and nuclear magnetic resonance (NMR) could have been used to determine if the polyurethane paint at both sites is chemically the same. See Suppl. Joint Report, Ex. A. In addition, New England argues that Dr. McSwain did not take into account the fact that the paint on the hub end of the blade is “considerably thicker” than the paint towards the tip of the blade. Reply, Ex. A at 4; see also Ex. B at 6, Ex. C ¶ 3.

Plaintiffs respond that Dr. McSwain’s methodology, FT-IR, is a reliable scientific method to determine that the paint on the propeller blade was polyurethane. Joint Report at 8. Plaintiffs further argue that because Dr. McSwain observed that the paint was “uniform in composition and appearance over the blade surface,” he did not need to employ GCMS or NMR to determine whether the polyurethane paint on the blade shank and airfoil was the same. Id. at 9; see also Suppl. Joint Report at 2 (arguing that “[i]f the paint was applied at different times a scientist using microscopes and SEM would be able to see a physical step or attempts to blend and that is not present here”).

The Court rejects New England’s argument as to the presence of polyurethane paint on the propeller blade. Dr. McSwain’s use of FT-IR to determine that there was polyurethane paint on the blade shank and airfoil is reliable. FT-IR is “widely used and generally accepted in the fields of analytical and forensic chemistry.” United States v. Vitek Supply Corp., 144 F.3d 476, 485 (7th Cir. 1998); see also United States v. McVeigh, 955 F. Supp. 1278, 1279 (D. Colo. 1997) (same). It is also a recommended method set forth in the Standard Guide for Forensic Paint Analysis and Comparison of the American Society for Testing and Materials (“ASTM”), ASTM E 1610-02. Joint Report, Ex. A ¶ 8.10.1. See also EdgeCo. Inc. v. FastCap, LLC, 2005 WL

1630836, *10 (D.N.J. Jul. 11, 2005) (“ASTM standards are widely accepted by engineers and other professionals in the field of materials testing.”); Eclipse Elec. v. Chubb Corp., 176 F. Supp. 2d 406, 410 (E.D. Pa. 2001) (citing adoption of methods by ASTM as evidence that expert’s methods are generally accepted). Moreover, Dr. McSwain is qualified to employ FT-IR. See Robinson, 326 F. Supp. 2d at 667-68 (noting that Dr. McSwain “completed a course in Fourier Transform Infrared Theory, Sample Handling and Spectral Interpretation, the method used to analyze the paint on the blade.”); see also Mitchell, 365 F.3d at 235 (holding that expert’s qualifications are relevant to question of reliability).

New England argues that FT-IR alone is an insufficient method of analysis and that Dr. McSwain should have also compared the chemical composition of the polyurethane paint on the blade shank and airfoil. However, ASTM E 1610-02 states that gas chromatography may be used, but not that the method is necessary. Joint Report, Ex. A ¶ 8.11. Under Daubert, the argument that additional testing methods were possible goes to the weight of Dr. McSwain’s testimony and not its admissibility. “It may well be that other methods not generally used in the field may prove to be the best method of analysis. However, Daubert and Kumho Tire do not make the perfect the enemy of the reliable; an expert need not use the best method of evaluation, only a reliable one.” United States v. Monteiro, 407 F. Supp. 2d 351, 366 (D. Mass. 2006); see also Kannankeril v. Terminix Intern., Inc., 128 F.3d 802, 807 (3d Cir. 1997) (holding that where physician examined medical records but did not conduct a physical examination of the patient, the physician’s differential diagnosis was reliable); Reichhold, Inc. v. U.S. Metals Refining Co., 2007 WL 674686, *13 (D.N.J. Feb. 28 2007) (holding that where expert examined documents but not soil sampling data, opinion was admissible). Nor is Dr. McSwain’s failure to consider

the decreasing thickness of the paint at the tip end of the propeller a proper subject for a Daubert challenge. See Walker v. Gordon, 46 Fed. App'x 691, 695 (3d Cir. 2002) (holding that the failure of an expert to rely on all of the evidence in the case was "a proper subject for cross examination"). Thus, the Court concludes that Dr. McSwain's testimony as to the polyurethane paint on the propeller blade rests on "good grounds" and is admissible. Mitchell, 365 F.3d at 244.

2. Dr. McSwain's Proposed Testimony Regarding Chromium Is Reliable

Dr. McSwain examined the surface of the propeller blade in a scanning electron microscope using x-ray energy spectroscopy and observed chromium on the surface of the blade. Resp., Ex. E at 2. Dr. McSwain further observed that "[t]he aluminum propeller blade and the gray paint on the fracture origin of the blade [did] not contain chromium." Id. On the basis of these observations, Dr. McSwain concluded that "[t]he presence of chromium on the surface of the blade is consistent with, and indicative of, an alodine treatment applied to the blade surface." Id.

In its Daubert Motion, New England argues that Dr. McSwain did not take into account evidence suggesting that no alodine treatment was applied. Specifically, New England argues that if it had applied an alodine treatment there would be gold coloring underneath the base paint, but that gold coloring is absent from photographs of the propeller blade. Mot. at 12, Ex. N. New England further argues that Dr. McSwain did not rule out anodizing as a possible source of the chromium observed. In support of this argument, New England presents evidence that Hartzell anodizes propeller blades during its manufacturing process and that anodizing results in the presence of chromium. Reply at 5, Ex. B at 8, Ex. D at 1.

Plaintiffs respond that the lack of gold coloring underneath the base paint is not determinative because the color of alodine varies according to the thickness of the application. Joint Report at 10, Ex. E § 4. Plaintiffs further assert that Dr. McSwain distinguished between an alodine treatment and anodizing as possible sources of the chromium observed. Anodizing results in a “signature” cross sectional layer. Joint Report at 10. Accordingly, Dr. McSwain used a microscope to determine if a “cross sectional layer” was present on the propeller. Plaintiffs assert that because he did not find one, Dr. McSwain properly concluded that the chromium was not the result of anodizing.

The Court rejects New England’s arguments as to the presence of chromium on the propeller blade. New England does not challenge Dr. McSwain’s use of a scanning electron microscope with x-ray energy spectroscopy to determine that there was chromium on the blade. Moreover, there is evidence that Dr. McSwain ruled out anodizing as a possible source of chromium by measuring a cross sectional layer. Joint Report at 10, Ex. D. The taking of a cross sectional layer is itself a reliable method set forth in ASTM B 487-85. Id. Ex. D.

Under the circumstances, plaintiffs have demonstrated by a preponderance of the evidence that Dr. McSwain’s proposed testimony as to the presence of chromium on the propeller blade is reliable. See Paoli II, 35 F.3d at 744. New England will have an opportunity to cross-examine Dr. McSwain and present rebuttal testimony at trial. Daubert, 509 U.S. at 595 (“Vigorous cross-examination, presentation of contrary evidence, and careful instruction on the burden of proof are the traditional and appropriate means of attacking shaky but admissible evidence.”).

3. Dr. McSwain's Proposed Testimony Regarding Corrosion Pits and Abrasions is Reliable

Using scanning electron microscopy and surface condition analysis, Dr. McSwain observed that “[t]he blade camber surface . . . exhibited fine corrosion pits as well as larger isolated pits such as the one at the [fracture] origin.” Mot., Ex. O ¶ 3.5. These pits were covered with paint. Id. ¶ 5.0(10). Using FT-IR, Dr. McSwain found that the paint in the corrosion pits was consistent with polyurethane paint. Id. ¶ 3.6. In addition, using scanning electron microscopy, Dr. McSwain observed “numerous refinishing scratches” on the surface of the propeller blade. Id. ¶ 3.5.

In its Daubert Motion, New England does not challenge Dr. McSwain's use of scanning electron microscopy and surface condition analysis to observe corrosion pits and abrasions on the propeller blade. Rather, New England challenges Dr. McSwain's characterization of some of the abrasions observed as “refinishing scratches.” New England argues that Dr. McSwain did not compare the propeller to other “control” propellers, such as propellers that were not overhauled, to provide a “scientific basis for labeling of the scratches as ‘refinishing scratches.’” Joint Report at 6. New England further argues that Dr. McSwain did not analyze the entire blade to track the abrasions. Id. at 6.

In response, plaintiffs do not address the issue of “refinishing scratches.” Rather, plaintiffs assert that Dr. McSwain observed corrosion pits that were coated with polyurethane paint. This is evidence that the corrosion pits were present when the paint was applied.

The Court rejects New England's argument as to Dr. McSwain's characterization of abrasions observed on the propeller blade as “refinishing scratches.” “[T]he text of Rule 702 expressly contemplates that an expert may be qualified on the basis of experience.” Fed. R. Evid.

702, advisory committee notes; see also Kumho Tire, 526 U.S. at 156 (“[N]o one denies that an expert might draw a conclusion from a set of observations based on extensive and specialized experience.”). The expert in this case, Dr. McSwain, “has ‘analyzed hundreds of failures in aluminum components due to corrosion pitting.’ . . . In his consulting practice, he has ‘analyzed rotor blade and propeller blade failures, including fatigue failures from corrosion pits.’”

Robinson, 326 F. Supp. 2d at 667-68 (citations omitted). Moreover, Dr. McSwain explained his conclusion that the propeller was refinished by stating that scanning electron microscopy of one corrosion pit “revealed sharp edges . . . typical of corrosion attack of wrought aluminum that has had surface refinishing performed.” Mot., Ex. O ¶ 3.5. Scanning electron microscopy of another pit “revealed a shallow condition typical of refinishing of the surface of the blade in the area of the pit.” Id. These observations support Dr. McSwain’s characterization of abrasions on the propeller blade as “refinishing scratches.” Thus, plaintiffs have demonstrated by a preponderance of the evidence that Dr. McSwain’s proposed testimony is reliable.

B. The “Fit” of Dr. McSwain’s Proposed Testimony

Finally, New England asserts that Dr. McSwain’s proposed testimony “does not ‘fit’ the facts of the case.” Mot. at 13. Specifically, New England argues that “no evidence supports Dr. McSwain’s conclusions that [it] overhauled or performed any work in the area of the propeller that failed.” Id. at 12-13.

The Court rejects this assertion. Dr. McSwain is “permitted to base his opinion on a particular version of disputed facts and the weight to be accorded to that opinion is for the jury.” Walker, 46 Fed. App’x at 695-96. Dr. McSwain’s proposed testimony regarding the polyurethane paint on the propeller blade, the presence of chromium, and the presence of

corrosion pits and abrasions will assist a trier of fact in determining whether New England overhauled the propeller and whether maintenance or an overhaul was performed negligently. See 1150 BP LLC v. Qwest Chemical Corp., 2006 WL 1997380, *3 (E.D. Pa. Jul. 12, 2006) (holding that expert testimony as to “[c]entral issues” in case satisfies the Daubert “fit” requirement).

Thus, New England’s Daubert Motion is denied as to Dr. McSwain. New England will have an opportunity to cross-examine Dr. McSwain, offer rebuttal testimony, and raise objections to inadmissible questions or other evidence at trial. By agreement of the parties, the Court’s ruling as to Dr. McSwain is “determinative” as to plaintiffs’ additional experts. Joint Report at 1.

V. CONCLUSION

For the foregoing reasons, Defendant New England Propeller Service, Inc.’s Motion in Limine to Preclude Reports and Testimony of Donald E. Sommer, Richard H. McSwain, Mark B. Hood, Manuel Raefsky, Jerry D. Foster, and A.J. Fiedler Against New England Propeller Service, Inc. is denied.

An appropriate order follows.

Concerning the Need for a Daubert Hearing in Connection with Defendant's Motion in Limine to Preclude Certain Testimony of Plaintiffs' Experts (Document No. 135, filed July 16, 2007), for the reasons set forth in the attached Memorandum, **IT IS ORDERED** that Defendant New England Propeller Service, Inc.'s Motion in Limine to Preclude Reports and Testimony of Donald E. Sommer, Richard H. McSwain, Mark B. Hood, Manuel Raefsky, Jerry D. Foster, and A.J. Fiedler Against New England Propeller Service, Inc. is **DENIED**.

BY THE COURT:

/s/ Honorable Jan E. DuBois
JAN E. DUBOIS, J.